

Applicants respectfully contend that Onomura et al. does not disclose a “flip-chip” type light-emitting device in which light is reflected by the positive electrode layer toward the substrate and emitted from the device.

According to the Office Action, Onomura et al. discloses “a first positive electrode layer which is formed on or above a p-type semiconductor layer 506 and [which] reflects light toward said substrate.” It appears that the Examiner’s assertion is based on Col. 9, lines 63-65, which recites “a $\text{TiO}_2/\text{SiO}_2$ multi-layered high-reflective coat [which is not shown in the drawings] is applied on the laser light emitting facet.” However, Onomura et al. does not disclose that the high-reflective coat reflects light toward the substrate. Rather, Applicants submit that the high-reflective coat reflects light upward and away from the substrate. Therefore, Onomura et al. does not anticipate claim 1.

Claim 2 depends from claim 1 and therefore is allowable over Onomura et al. for at least the reasons set forth above with respect to claim 1. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 2 is respectfully requested.

Claims 1 and 12 were rejected under 35 U.S.C. §102 (b) over Nitta et al., U.S. Patent No. 6,281,526. Applicants respectfully traverse this rejection.

As noted above, independent claim 1 recites a flip chip type of light-emitting semiconductor device comprising, among other elements, a positive electrode including at least one layer of a first positive electrode layer which is formed on or above a p-type semiconductor layer and which reflects light emitted by the active layer toward a substrate.

Nitta et al., in contrast, discloses a nitride compound light emitting device and, like Onomura et al., does not disclose the construction of a “flip-chip” device in which light is reflected by the positive electrode layer toward the substrate and emitted from the device.

According to the Office Action, Nitta et al. discloses “a first positive electrode layer 26’ which is formed on or above a p-type semiconductor layer 22 and [which] reflects light

toward said substrate.” However, the Examiner points to nothing in Nitta et al. that discloses a device in which light is reflected from the positive electrode layer toward the substrate and emitted from the device. In fact, Applicants note that Col. 6, lines 46-52 of Nitta et al. disclose that light emitted from the active layer 20 penetrates an electrode layer 26, 26’ to be “extracted” from a top surface of the device of Nitta et al. This clearly suggests that the light emitted by the active layer is not reflected toward the substrate 12, but rather, is emitted in a direction opposite to the substrate 12.

Claim 12 depends from claim 1 and is allowable over Onomura et al. for at least the reasons set forth above with respect to claim 1. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 12 is respectfully requested.

Claims 3-6 were rejected under 35 U.S.C. §103(a) over Onomura et al. in view of Yanagihara et al., U.S. Patent No. 5,523,623, on which the Office Action relies for its disclosure of a first thin-film metal layer made of cobalt, nickel, or an alloy of one of those metals formed between a p-type semiconductor layer and a first positive electrode layer. Applicants respectfully traverse this rejection.

Yanagihara et al. does not relate to flip chip type LEDs and does not remedy the deficiencies of Onomura et al. noted above with respect to claim 1. Accordingly, the combination fails to yield the claimed invention. Therefore, Applicants respectfully request that the rejection be withdrawn.

Claims 7-10 were rejected under 35 U.S.C. §103(a) over Onomura et al. in view of Yanagihara et al., and further in view of Neumann et al., U.S. Patent No. 5,614,736, on which the Office Action relies for its disclosure of a second thin-film metal layer made of at least one of gold and an alloy including gold. Applicants respectfully traverse this rejection.

Neumann et al. discloses a method for making ohmic contact to a GaP LED and does not relate to flip chip type LEDs having group III nitride compound semiconductor layers.

Neumann et al. does not remedy the deficiencies of Onomura et al. (or Yanagihara et al.) noted above with respect to claim 1. Accordingly, the combination fails to yield the claimed invention. Therefore, Applicants respectfully request that the rejection be withdrawn.

For at least the foregoing reasons, Applicants submit that the claims define patentable subject matter and that the entire application is in condition for allowance. Timely notice to that effect is therefore respectfully requested.

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned "Version with markings to show changes made".

Respectfully submitted,
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